

Remarks

The Office Action mailed August 29, 2005 has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-11 are now pending in this application. Claims 1-8 are rejected. Claims 9-11 have been newly added. Claims 1 and 4 have been amended. No new matter has been added. A fee calculation sheet is submitted herewith for the newly added Claim 11.

The rejection of Claims 1 and 4 under 35 U.S.C. § 102(b) as being anticipated by Dejon et al. (U.S. Patent No. 4,851,780) is respectfully traversed.

Dejon et al. describe a test head for NMR spectrometers. The test head includes an rf coil arranged on a carrier pipe, at the end of two parallel conductors extending substantially in an axial direction of the carrier pipe and forming a symmetrical two-conductor line section (column 1, lines 3-12). The test head also includes a shielding which extends over at least one section of the two conductors and is arranged on the side of the two conductors adjacent the axis of the carrier pipe (column 1, lines 3-12).

Claim 1 recites an RF shield for MRI systems, the RF shield comprising “a connector configured to connect a capacitor to said RF shield, wherein said RF shield is grounded via the capacitor, and wherein one of the MRI systems configured to generate a vertical magnetic field.”

Dejon et al. do not describe or suggest an RF shield as recited in Claim 1. Specifically, Dejon et al. do not describe or suggest a connector configured to connect a capacitor to the RF shield, where the RF shield is grounded via the capacitor, and one of the MRI systems configured to generate a vertical magnetic field. Rather, Dejon et al. describe a shielding which extends over at least one section of two conductors and is arranged on the side of the two conductors adjacent an axis of a carrier pipe. Dejon et al. further describe a test head for NMR spectrometers. Accordingly, Dejon et al. do not describe or suggest an MRI system configured to generate a vertical magnetic field. Hence, Dejon et al. do not describe or suggest the

RF shield is grounded via the capacitor, and one of the MRI systems configured to generate a vertical magnetic field. For the reasons set forth above, Claim 1 is submitted to be patentable over Dejon et al.

Claim 4 recites an MRI system comprising “a capacitor; a radio-frequency (RF) coil; a gradient coil; and an RF shield configured to prevent coupling between said RF coil and said gradient coil, wherein said MRI system configured to generate a vertical magnetic field, and said RF shield configured to be grounded via said capacitor.”

Dejon et al. do not describe or suggest an MRI system as recited in Claim 4. Specifically, Dejon et al. do not describe or suggest an RF shield configured to prevent coupling between the RF coil and the gradient coil, where the MRI system configured to generate a vertical magnetic field, and the RF shield configured to be grounded via the capacitor. Rather, Dejon et al. describe a shielding which extends over at least one section of two conductors and is arranged on the side of the two conductors adjacent an axis of a carrier pipe. Dejon et al. further describe a test head for NMR spectrometers. Accordingly, Dejon et al. do not describe or suggest an MRI system configured to generate a vertical magnetic field. Hence, Dejon et al. do not describe or suggest an RF shield within an MRI system configured to generate a vertical magnetic field, and the RF shield configured to be grounded via the capacitor. For the reasons set forth above, Claim 4 is submitted to be patentable over Dejon et al.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1 and 4 be withdrawn.

The rejection of Claims 1 and 3-4 under 35 U.S.C. § 102(b) as being anticipated by Richard et al. (U.S. Patent No. 5,592,087) is respectfully traversed.

Richard et al. describe an RF shield including a plurality of lapped metallic strips on opposite faces of a dielectric sheet (column 4, line 65 – column 5, line 1). The dielectric sheet provides capacitive interconnections between two sides of the shield (column 4, line 65 – column 5, line 1). Radio frequency currents induced in the shield flow in an azimuthal or circumferential direction around the shield through the

capacitors formed by the overlapping strips and the dielectric layer in between (column 5, lines 1-5).

Claim 1 recites an RF shield for MRI systems, the RF shield comprising “a connector configured to connect a capacitor to said RF shield, wherein said RF shield is grounded via the capacitor, and wherein one of the MRI systems configured to generate a vertical magnetic field.”

Richard et al. do not describe or suggest an RF shield as recited in Claim 1. Specifically, Richard et al. do not describe or suggest a connector configured to connect a capacitor to the RF shield, where the RF shield is grounded via the capacitor, and one of the MRI systems configured to generate a vertical magnetic field. Rather, Richard et al. describe an RF shield including a plurality of lapped metallic strips on opposite faces of a dielectric sheet. The dielectric sheet provides capacitive interconnections between two sides of the shield. Accordingly, Richard et al. do not describe or suggest an RF shield is grounded via a capacitor. Hence, Richard et al. do not describe or suggest the RF shield is grounded via the capacitor, and one of the MRI systems configured to generate a vertical magnetic field. For the reasons set forth above, Claim 1 is submitted to be patentable over Richard et al.

Claim 3 depends from independent Claim 1. When the recitations of Claim 3 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 3 likewise is patentable over Richard et al.

Claim 4 recites an MRI system comprising “a capacitor; a radio-frequency (RF) coil; a gradient coil; and an RF shield configured to prevent coupling between said RF coil and said gradient coil, wherein said MRI system configured to generate a vertical magnetic field, and said RF shield configured to be grounded via the capacitor.”

Richard et al. do not describe or suggest an MRI system as recited in Claim 4. Specifically, Richard et al. do not describe or suggest an RF shield configured to prevent coupling between the RF coil and the gradient coil, where the MRI system configured to generate a vertical magnetic field, and the RF shield configured to be grounded via the capacitor. Rather, Richard et al. describe an RF shield including a

plurality of lapped metallic strips on opposite faces of a dielectric sheet. The dielectric sheet provides capacitive interconnections between two sides of the shield. Accordingly, Richard et al. do not describe or suggest an RF shield configured to be grounded via a capacitor. Hence, Richard et al. do not describe or suggest an RF shield within an MRI system configured to generate a vertical magnetic field, and the RF shield configured to be grounded via the capacitor. For the reasons set forth above, Claim 4 is submitted to be patentable over Richard et al.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1 and 3-4 be withdrawn.

The rejection of Claims 2, 3, 5, and 7 under 35 U.S.C. § 103(a) as being unpatentable over Dejon et al. is respectfully traversed.

Dejon et al. is described above.

Claims 2 and 3 depend from independent Claim 1 which recites an RF shield for MRI systems, the RF shield comprising “a connector configured to connect a capacitor to said RF shield, wherein said RF shield is grounded via the capacitor, and wherein one of the MRI systems configured to generate a vertical magnetic field.”

Dejon et al. do not describe or suggest an RF shield as recited in Claim 1. Specifically, Dejon et al. do not describe or suggest a connector configured to connect a capacitor to the RF shield, where the RF shield is grounded via the capacitor, and one of the MRI systems configured to generate a vertical magnetic field. Rather, Dejon et al. describe a shielding which extends over at least one section of two conductors and is arranged on the side of the two conductors adjacent an axis of a carrier pipe. Dejon et al. further describe a test head for NMR spectrometers. Accordingly, Dejon et al. do not describe or suggest an MRI system configured to generate a vertical magnetic field. Hence, Dejon et al. do not describe or suggest the RF shield is grounded via the capacitor, and one of the MRI systems configured to generate a vertical magnetic field. For the reasons set forth above, Claim 1 is submitted to be patentable over Dejon et al.

When the recitations of Claims 2 and 3 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2 and 3 likewise are patentable over Dejon et al.

Claims 5 and 7 depend, directly or indirectly, from independent Claim 4 which recites an MRI system comprising “a capacitor; a radio-frequency (RF) coil; a gradient coil; and an RF shield configured to prevent coupling between said RF coil and said gradient coil, wherein said MRI system configured to generate a vertical magnetic field, and said RF shield configured to be grounded via said capacitor.”

Dejon et al. do not describe or suggest an MRI system as recited in Claim 4. Specifically, Dejon et al. do not describe or suggest an RF shield configured to prevent coupling between the RF coil and the gradient coil, where the MRI system configured to generate a vertical magnetic field, and the RF shield configured to be grounded via the capacitor. Rather, Dejon et al. describe a shielding which extends over at least one section of two conductors and is arranged on the side of the two conductors adjacent an axis of a carrier pipe. Dejon et al. further describe a test head for NMR spectrometers. Accordingly, Dejon et al. do not describe or suggest an MRI system configured to generate a vertical magnetic field. Hence, Dejon et al. do not describe or suggest an RF shield within an MRI system configured to generate a vertical magnetic field, and the RF shield configured to be grounded via the capacitor. For the reasons set forth above, Claim 4 is submitted to be patentable over Dejon et al.

When the recitations of Claims 5 and 7 are considered in combination with the recitations of Claim 4, Applicants submit that dependent Claims 5 and 7 likewise are patentable over Dejon et al.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 2, 3, 5, and 7 be withdrawn.

In addition to the arguments set forth above, Applicants respectfully submit that the Section 103 rejection of Claims 2, 3, 5, and 7 is not a proper rejection. As is well established, the mere assertion that it would have been obvious to one of ordinary skill in the art to have modified Dejon et al. to obtain the claimed recitations of the present invention does not support a prima facie obvious rejection. Rather,

each allegation of what would have been an obvious matter of design choice must always be supported by citation to some reference work recognized as standard in the pertinent art and the Applicants given the opportunity to challenge the correctness of the assertion or the notoriety or repute of the cited reference. Applicants have not been provided with the citation to any reference supporting the combination made in the rejection. The rejection, therefore, fails to provide the Applicants with a fair opportunity to respond to the rejection, and fails to provide the Applicants with the opportunity to challenge the correctness of the rejection. Of course, such combinations are impermissible, and for this reason alone, Applicant requests that the Section 103 rejection of Claims 2, 3, 5, and 7 be withdrawn.

The rejection of Claims 6 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Richard et al. in view of Carlson (U.S. Patent 5,304,932) is respectfully traversed.

Richard et al. is described above.

Carlson describes a plurality of RF shield foils (42, 44) (column 4, lines 40-44). The RF shield foils are electrically isolated from all other MRI structures (column 4, lines 40-44). Such conductive layers could well be electrically grounded within an MR system (column 4, lines 40-44).

Claim 6 recites a vertical field-type MRI system, “wherein an upper RF shield is grounded via capacitors at four or more points whose directions are different from one another by an equal angle, and a lower RF shield is grounded via capacitors at four or more points whose directions are different from one another by an equal angle.”

Neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest a vertical field-type MRI system as recited in Claim 6. Specifically, neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest an upper RF shield is grounded via capacitors at four or more points whose directions are different from one another by an equal angle, and a lower RF shield is grounded via capacitors at four or more points whose directions are different from one another by an equal angle. Rather, Richard et al. describe an RF

shield including a plurality of lapped metallic strips on opposite faces of a dielectric sheet. The dielectric sheet provides capacitive interconnections between two sides of the shield. Accordingly, Richard et al. do not describe or suggest an upper RF shield is grounded and a lower RF shield is grounded. Carlson describes a plurality of RF shield foils having conductive layers that could be electrically grounded within an MR system. Accordingly, Carlson does not describe or suggest an upper RF shield is grounded via capacitors and a lower RF shield is grounded via capacitors. Hence, neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest an upper RF shield is grounded via capacitors at four or more points whose directions are different from one another by an equal angle, and a lower RF shield is grounded via capacitors at four or more points whose directions are different from one another by an equal angle. For the reasons set forth above, Claim 6 is submitted to be patentable over Richard et al. in view of Carlson.

Claim 8 depends from independent Claim 6. When the recitations of Claim 8 are considered in combination with the recitations of Claim 6, Applicants submit that dependent Claim 8 likewise is patentable over Richard et al. in view of Carlson.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 6 and 8 be withdrawn.

Moreover, Applicants respectfully submit that the Section 103 rejection of Claims 6 and 8 is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to combine Richard et al. with Carlson because there is no motivation to combine the references suggested in the cited art itself.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01.

Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Richard et al. teach an RF shield including a plurality of lapped metallic strips on opposite faces of a dielectric sheet. The dielectric sheet provides capacitive interconnections between two sides of the shield. Carlson teaches a plurality of RF shield foils having conductive layers that could be electrically grounded within an MR system.. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claims 6 and 8 be withdrawn.

For at least the reasons set forth above, Applicants respectfully request that the rejections of Claims 6 and 8 under 35 U.S.C. 103(a) be withdrawn.

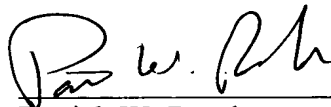
Newly added Claim 9 depends from independent Claim 1, which is submitted to be in condition for allowance and is patentable over the cited art. For at least the reasons set forth above, Applicants respectfully submit that Claim 9 is also patentable over the cited art.

Newly added Claim 10 recites a magnetic resonance imaging system. None of the art cited in the Office Action, considered alone or in combination, describe or suggest a magnetic resonance imaging system as recited in Claim 10. Accordingly, Applicant respectfully submits that Claim 10 is patentable over the cited art.

Newly added Claim 11 depends from independent Claim 10, which is submitted to be in condition for allowance and is patentable over the cited art. For at least the reasons set forth above, Applicants respectfully submit that Claim 11 is also patentable over the cited art.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Patrick W. Rasche", written over a horizontal line.

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